

What Is Claimed Is.:

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[0027] 1. Device (1) for detecting particles (2) on a windshield (3) of a motor vehicle (10), with a radiation source (4) which emits optical rays (5) onto the windshield (3), with a photodetector (6), which receives a portion of the rays (5) emitted onto the windshield (3), and with a control unit (8), which manages the radiation source (4) and analyzes the rays (7) received by the photodetector (6), characterized in that the radiation source (4) is positioned outside the field of vision of a driver of the vehicle (10) and is aligned in such a way that the light rays (5) from the radiation source (4) strike the windshield (3) in the area of the field of vision, and that the photodetector (6) is pointed at the area of the windshield (3) which the optical rays (5) from the radiation source (4) strike.

[0028] 2. Device (1) in accordance with claim 1, wherein the radiation source (4) is formed as a light-emitting-diode (LED).

[0029] 3. Device (1) in accordance with claim 1 or 2, wherein the photodetector (6) possesses several receiving units.

[0030] 4. Device (1) in accordance with claim 3, wherein the receiving units are formed as optoelectronic arrays such as, for example, charge-coupled device (CCD) image converters.

[0031] 5. Device (1) in accordance with claim 3 or 4, wherein means (12) are located in the direction of propagation of the beams (7) reflected from the particles (2) in front of the receiving units for focusing the beams.

[0032] 6. Device (1) in accordance with claim 5, wherein the means (12) for focusing the beams are formed as lenses.

[0033]

7. Device (1) in accordance with one of the claims 1 to 6, wherein the radiation source (4) emits optical rays (5) with a wavelength of about 350 nm to 800 nm.

[0034]

8. Device (1) in accordance with one of the claims 1 to 6, wherein the radiation source (4) emits optical rays with a wavelength in the infrared range.

[0035]

9. Device (1) in accordance with one of the claims 1 and 8, wherein the control unit (8) manages the radiation source (4) in such a way that the type of particles can be determined from the rays (7) received by the photodetector.

[0036]

10. Device (1) in accordance with one of the claims 1 to 9, wherein the control unit (8) analyzes the rays received by the detector (7) by means of suitable algorithms so that the type of particles (2) can be determined.

[0037]

11. Device (1) in accordance with one of the claims 1 to 10, wherein the device (1) is an integral part of an interior light module in the vehicle (10).

[0038]

12. Device (1) in accordance with one of the claims 1 to 10, wherein the device (1) is an integral part of a rearview mirror module in the vehicle (10).

[0039]

13. Device (1) in accordance with one of the claims 1 to 12, wherein the device (1) is connected over a bidirectional data bus to a superordinate control unit in the vehicle (10).

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